

## **Amendments to the Claims**

This listing of claims will replace all prior versions, and listings, of claims in the application.

### **Listing of Claims:**

1. (Currently Amended) Apparatus for measuring ~~the~~ micro granulometry comprising:
  - a) a 1.1. Micro tube (1), adapted to receive a sample ~~+~~ in which the length is many times greater than the width and the cross-section is rectangular or circular ~~(see AA on FIG. 1).~~  
~~Milliliters scale 2 is marked on the face side.;~~
  - b) 1.2. Rolling holders (8) having rolling pivots (8.1) pivoted 8.1 and held biased towards the micro tube (1) with spring (8.2); 8.2.
  - c) 1.3. Sources: a Gamma source (10) 10, and a Sonic source (11); 11.
  - d) 1.4. Receivers: a Gamma receiver (12) 12, and a Sonic receiver (13); and 13.
  - e) 1.5. a Vertical screw (14) 14 and rotating nut (15) for controlling the position of the micro tube (1), and thus the sample, relative to the gamma receiver (12), sonic receiver (13), gamma source (10), or sonic source (11); 15.
2. (Currently Amended) The apparatus of claim 1, the Micro tube (1) 1 included in apparatus in claim 1 is having a generally rectangular in cross section AA on FIG. 1.
3. (Currently Amended) The apparatus of claim 2, the Micro tube (1) 1 in claim 2 is made from glass or other transparent materials allowing further microscopic description and analysis (including visual analysis).
4. (Currently Amended) The apparatus of claim 2, the Micro tube (1) 1 in claim 2 measures measuring 12.5 millimeters by 150 millimeters, having a . The total volume of is 18.4 ml. The total sample volume may be as low as 5 milliliters.
5. (Currently Amended) The apparatus of claim 1, the rolling pivots (8.1) Rolling holder in claim 1 pivoted 8.1 and held on the axis with spring (8.2) 8.2 is a device that keeps adapted to keep the tube in strictly a substantially vertical position and allows relative

movement slides it vertically while maintaining proximity contact with the gamma receiver (12), sonic receiver (13), gamma source (10), or sonic source (11), sources and the sensors.

6. (Currently Amended) The apparatus of claim 1, the Rolling holders comprising are comprised of a pair of micro wheels made from rubber or plastic and connected with each other by a bar with rolling pivot 8.1.

7. (Currently Amended) The apparatus of claim 6, the The rolling pivot (8.1) 8.1 has having an arm with a the suspended spring pushing the micro wheels to the micro tube; this in turn to hold holds the micro tube in a substantially strictly vertical position.

8 (Currently Amended) The apparatus of claim 1, the Gamma source (10) 10 in claim 1 is adapted to provide a pulsing source of directional gamma rays focused into a narrow beam. This focusing is accomplished by absorbing all the rays that are not parallel to the open tube.

9. (Currently Amended) The apparatus of claim 1, the Gamma receiver (12) 12 is comprising a detector, placed at the end of a tubular lead shield-, adapted to detect It detects only the gamma rays that are not absorbed by the sample in the micro tube test tube.

10. (Currently Amended) The apparatus of claim 9, the The miniature tube 28, FIG. 4 in claim 9 is made from lead and adapted to will absorb most of the naturally occurring background gamma rays.

11. (Currently Amended) The apparatus of claim 8, the The pulsing source in claim 8 is depicted in Fig. 4. It is comprised of:- comprising a Motor (25) 25 and Axis (24) 24 that adapted to rotate a sphere (22) 22.

12. (Currently Amended) A method The process for measuring the Microgranulometry of a sample, comprising- This is comprised of:

- a) 12.1. A means of placing the micro sample in the micro tube;
- b) 12.2. A means of agitating the mixture of samples with water in micro tube;
- c) 12.3. A means of measuring the properties of the sample in the tube;

d) ~~12.4. A means of recording and interpreting the data; and.~~

e) ~~12.5. A means of microscopic examination of the tube that contains the resulting layered aggregate.~~

13. (Currently Amended). The method of claim 12, the step of A means of placing the micro sample in the micro tube in claim 12.1. The means to extract comprising extracting a relatively small amount of sample from a the main bulk sample and disperse it in a dry condition. The extracted aggregate is discharged in to the micro tube (1) 1.

14. (Currently Amended) The method of claim 12, the step of A means of agitating the mixture of samples with water in the micro tube comprising in claim 12.2 is the process of adding water to the micro tube with sample and closing the top orifice of the micro tube with a cap, and then. The the micro tube is shaken until the sample becomes completely mixed in the water.

15. (Currently Amended) The method of claim 12, the step of A means of measuring the properties of the sample in the micro tube in claim 12.3. This includes a means for passing the micro tube in close proximity to the sources (10) 10, (11) 11 and their corresponding sensors (12) 12, (13) 13 so as to obtain a useful signal on an electronic measuring device. This signal is digitized and sent to the CPU.

16. (Currently Amended) The method of claim 12, the step of A means of recording and interpreting the data comprising in claim 12.4 using software that is capable of further processing the results for interpretation.

17. (Currently Amended) The method of claim 12, the step of A means of microscopic examination of the micro tube that contains the resulting layered aggregate mentioned in claim 12.5 by comprising viewing the side of the micro tube to describe and measure the layers in the micro tube based on its visual characteristics.